

my experience. But I am less interested in persuading you that I am right than in encouraging you to think things through for yourself and from your own experience. To the extent that my ways of looking provide you with useful tools for doing this, I will have succeeded.

It is worth saying something about the word *document*, which will figure so prominently in the pages ahead. There are several other terms that cover some of the same territory, which I will sometimes use, including *writing*, *written form*, and *text*. Each has its own history and its own biases. *Writing* and *written form* tend to suggest alphabetic materials and therefore leave out (or downplay) photographs, drawings, paintings, maps, and other nonverbal forms of expression. The word *text* in addition often seems to suggest something abstract and disembodied, and misses the sense of concreteness and physical presence that is so central to the story I have to tell.

The word *document* has its problems, too. Most notably, it is often used to designate the kinds of materials that have traditionally appeared on paper, such as legal contracts (e.g., wills) and identity papers (e.g., passports). This is much narrower than the use I intend, which is broad enough to include not only things written on paper but videotapes, films, audiotapes, and all manner of digital materials, including text files, spreadsheets, and Web pages. Still, there are several reasons why I am inclined to use the word *document*. First and perhaps least important, I have used it for a number of years in exactly this way, and it is the term of choice in the academic and business settings I frequent. More important, the word does seem to be expanding its meaning within certain circles, especially among computer users. Finally, *document* has an etymology that is at once both useful and pleasing: it comes from the Latin *docere*, which means “to teach.”

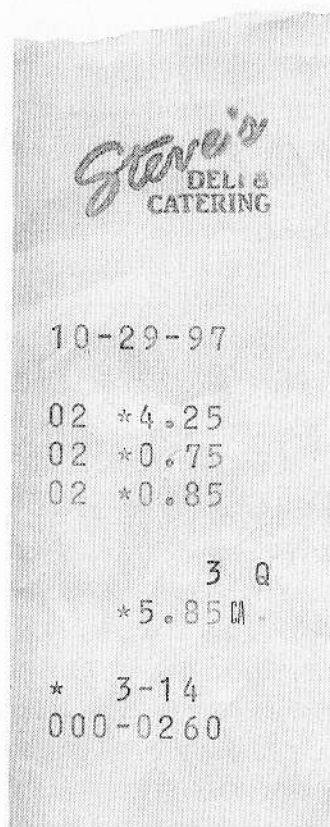
So, in the end, this is a book not about the word *document* but about a class of cultural artifacts and the central idea that underlies them in all their myriad forms. Documents have much to teach us, I believe, if we will only listen.

1

Meditation on a Receipt

WHAT CAN DOCUMENTS TEACH US? Let's begin by looking at one, close up. The one I have in mind is a cash register receipt, a small strip of paper, 1¼ inches in width and approximately 4¼ inches in length, marked in light blue ink. At the top it reads “Steve's Deli & Catering.” Immediately below is a sequence of numbers, 10-29-97, and near the bottom is a decimal value, 5.85. From the look of it, someone bought something from Steve's Deli on October 29, 1997, and paid \$5.85 for it.

This might seem like an odd place to begin a discussion of documents. Why not begin with a more magnificent specimen, perhaps something beautiful, such as the Book of Kells? Or something more reverently ancient, a Sumerian clay tablet or the Rosetta stone? Or something with an aura of power about it, the U.S. Constitution or an international treaty? This little receipt is so plain and ordinary, so manifestly uninteresting. There are millions and billions of receipts just like it. Every financial transaction at the supermarket, the newsstand, the florist, the drugstore, produces one. You can see people's attitude toward them in the way they're handled. They are often left on the counter — refused or even handed back with a vague air of displeasure. (I can't be bothered with this.) Or they are stuck away in a grocery bag or stuffed in one's pocket or purse, only to be discarded later. Surely receipts like this are the bottom of the bin.



A receipt for the purchase of a tuna-fish sandwich, a bag of chips, and a bottle of water

But this is exactly the point. If we are going to see into the nature of documents, we would do well to deal directly with the most abundant and ordinary of them. It is easy enough to be transported to heights of ecstasy by the most magnificent specimens. Indeed, we may be spellbound by their beauty and power. The bigger challenge is to look closely and respectfully at the lowest and homeliest of them. And should we find beauty, depth, and power in *these*, we will surely have accomplished something.

[This little receipt is a historical document. Although hardly of the magnitude — or the permanence — of the Rosetta stone, it is a snapshot of something that happened at another time and place.

Embedded in it physically, through the absorption of blue dye into processed tree pulp, is the record of a moment when someone (in fact it was me) bought a tuna sandwich, a bag of chips, and a bottle of water in a deli on El Camino Real in Burlingame, California.]

The receipt is historical in another sense as well. If it serves as a reminder of a minor transaction in late October 1997, it simultaneously carries within its form the memory of thousands of years of human struggle and development. That receipts like this one are so readily printed and so casually tossed away is due in large measure to the availability of cheap, high-quality paper. This wasn't always so.

[Paper was invented in China in the second century C.E. and made its way to Europe in the twelfth century, carried by Arab traders.] We tend to think that brilliant new inventions explode onto the scene and are immediately embraced by all (making fortunes in stock for the founders of companies that produce them). But that isn't usually the way it works. There is more typically a slow process of diffusion and adaptation, and this is certainly what happened with paper.

[People have always made writing surfaces from the natural materials immediately around them. Some, like clay, require little preparation to be usable. Others, most notably papyrus and animal skins, need to be manufactured. Papyrus, from which the word *paper* is derived, is a rush or grasslike plant that grows in the Nile river delta. To make a writing surface, the plant is sliced lengthwise into long strips. These strips are laid in rows and allowed to dry in the sun, resulting in a highly durable surface that will accept marks on one side.]

The process of turning animal skins into writing surfaces is more extensive: it involves raising the animals, skinning them and removing the hair, then stretching and sanding the skins. But the resulting product can be marked on both sides, and while papyrus can only be cultivated in limited regions of the world, livestock is raised in most climates as a source of food and clothing as well. The resulting surface can be remarkably thin, smooth, soft, and pliable. It is also extremely durable: pieces of vellum (from the same Latin root that gives us *veal*) have survived, with their marks intact, for a thousand years or more.

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Medieval monasteries typically had to maintain extensive herds — for food, of course, as well as books. The invention of paper provided a vegetarian alternative that could be made locally. Instead of killing and skinning animals, [plant fibers could be mashed into a pulp, spread out in thin layers, and dried.] With proper treatment the resulting surfaces could accept forms written with a quill or brush.

The main advantage of medieval paper over animal skins was its lower price. Paper was actually more fragile and had a rougher surface than animal skins. It didn't accept inks and pigments nearly as well, and was harder to correct. It wasn't until the fourteen or fifteenth century, several hundred years after its introduction into Europe, that paper began to supplant animal skins. Initially this was due to its improved quality and availability. But with the invention of the printing press in the middle of the fifteenth century, which produced better results on paper than on most skins, the demand for paper increased dramatically.¹

In those first centuries after the papermaking process was introduced into Europe, and indeed for many centuries afterward, [rags provided the primary raw material for the making of paper.] We might think of this as an early form of recycling. Once clothing, made of cotton, linen, and hemp, had served its useful lifetime, it was collected by the "ragman" as the first step in the papermaking process. (So important were clothes fibers to papermaking that in seventeenth-century England a law was passed mandating that the dead be buried in wool, which was unsuitable for making paper.)² The availability of rags placed limits on the quantity of paper that could be produced. Periodic shortages of rags produced crises in book production.

The search began for an alternative to rags. Although the use of wood was first suggested in the eighteenth century,³ [it wasn't until the middle of the nineteenth century — not so very long ago — that techniques for making paper from wood pulp became commercially viable.] With the invention of the steam engine as a cheap and reliable source of power, it was finally possible to produce large, continuous rolls of inexpensive paper. It thus became possible to make lots of

cheap, expendable documents, like the receipt we're currently examining. Looking closely, you can indeed see that this receipt was torn from a continuous roll. The ragged upper edge gives evidence of the sudden gesture of the wrist and hand that separated it from the mother roll.

So much for the paper it's printed on. What makes this a document rather than a mere scrap of paper is its symbolic or representational power. Its little blue marks allow it to tell a story. From the time of the cave paintings at least, human beings have been working out how to depict, name, and describe events and objects in such a way that they could be called to mind — re-called or re-presented — at a later time and place. That this receipt is able to tell its tale so succinctly and efficiently is the result of thousands of years of developments in written forms.

Each of the shapes has its own history, its own story. Let's start with the capital letters. These come to us most directly from Roman times, adapted from earlier Etruscan and Greek letterforms. Two thousand years ago, the Romans had a twenty-three-letter alphabet (lacking only our *J*, *V*, and *W*), the forms written just as we see them on this receipt. Which means that all the capital letters — *A*, *C*, *D*, *E*, *G*, *I*, *L*, *N*, *Q*, *R*, *S*, *T* — appearing on this receipt would have been immediately recognizable to our Roman ancestors.

Not so the lowercase letters. These didn't begin to develop until the third century C.E. The Roman capitals had been written slowly; they were often carved in stone — a deliberate and painstaking process. (We call them capitals — from the Latin *capitalis* for "head" — because they were often incised at the head or top of monumental columns.) But as these forms were written more quickly — with quills on vellum rather than with brushes and chisels on stone — the shapes became rounder and simpler. The uncial alphabet, which made its appearance in the third century C.E., has a very mixed look to our modern eyes. While most of the forms look decidedly uppercase, a small number of others have a distinctly lowercase feel to them, including *a*, *d*, *h*, *m*, and *q*.⁴ It was during Charlemagne's so-called Carolingian renaissance in the eighth century — an intense

period of spiritual and literary exploration during which handwriting was refined and reformed — that the lowercase letters as we know them finally emerged in a clear and beautiful form.

(The terms *lowercase* and *uppercase* are actually derived from printing practice. The compositor or typesetter kept his pieces of metal type in bins or “cases.” The small letters were traditionally kept in the case below the one holding the capital letters; thus the small letters were in the lower case, the big letters in the upper case. Strictly speaking, it is anachronistic to call letterforms of the eighth century lowercase. [More accurate terms would be *minuscule*, meaning small, or lowercase and *majuscule*, meaning big, for uppercase.]

At any rate, by the eighth century, more or less, all the letter shapes needed to make this receipt had come into existence. But they functioned quite differently at that time than they do now. The capitals and the lowercase letters formed essentially separate scripts or “hands.” A text, or portions of a text, would be written in one script or the other. It wasn’t until the Renaissance that the practice of mixing capitals with lowercase letters within a single word (e.g., to begin a sentence or write a proper name) began to emerge. This seems to have been an outgrowth of the use of versals — large illuminated letters — to start a page or a new section of a text. Thus, although the forms of the letters appearing on this receipt are quite old, stretching back a thousand years or more, the manner of combination, as seen in the word “Steve’s,” is much more recent.

Yet letterforms play a fairly minor part in the receipt we’ve been examining. Instead, this receipt is mainly filled with numbers — or numerals to be more exact — and with good reason: it is a financial record, a kind of accounting document, and in this respect it harks back to the earliest days of writing. Archaeological evidence indicates that counting and accounting were some of the first uses of writing. Many of the Mesopotamian cuneiform tablets dug up in Iraq and Iran are administrative records: lists of tribute received, rations distributed, payments made. One scholar, the anthropologist Denise Schmandt-Besserat, even theorizes that writing was a direct out-

growth of counting and accounting practices conducted within increasingly complex, urban societies.⁵

Numerals have at least as long a history as letters. The familiar forms appearing on this receipt are of relatively recent origin. Like paper, they seem to have been brought to Europe through Moslem conquest and settlement. (Whereas paper came originally from China, the numerals originated in India.) Like the adoption of paper in Europe, the diffusion of the numerals was a slow process, lasting centuries. The most radical of the numerals, zero, took a slower course than the others. Although the numerals had made their way to Spain by the tenth century, zero wasn’t in common use until the eleventh or twelfth century. There is a certain logic to the delay, since the Arabic numerals were serving as a replacement for the earlier Roman numerals, which lacked a zero. It must have taken quite a while for educational and commercial practices to adjust to this strange new symbol, a mark signifying nothing, a presence signaling an absence. (Still, how strange to think that the use of zero in the West is only a thousand years old.) Decimal notation is even more recent; the decimal point was first used at the end of the fifteenth century.

The decimal point is just one of the nonalphabetic, nonnumeric symbols appearing on the receipt. I count five of them in all — the decimal point or period, the hyphen or dash, the asterisk, the apostrophe, and the ampersand. All but the last of these are punctuation marks (from the Latin *punctus* or “point”). They are secondary signifiers — meta-symbols, you might say — that have been developed over the millennia to make reading easier and to help resolve potential ambiguities. Early writing used few such devices; indeed, in a style called *scriptio continua* (continuous writing), words were strung together without any visual indication of the divisions between them. At a later stage, dots or points were added to mark the boundaries of words. This was finally replaced by the convention we use today, that of separating words spatially. This convention didn’t become the norm until the twelfth century. It took quite a while

then for space — the absence of a mark — to come to serve as punctuation. Perhaps it is only accidental that it made its appearance at about the same time as zero, the absence of all quantity.

But space functions as more than punctuation in this sense. It is the single greatest resource for the writer, at once the most blatantly obvious and the most invisible resource on the page. Written marks, after all, are only discernible against an unmarked background. The shape of a single letter, a capital *B* for example, is equally made up of its negative spaces (the holes that make up its two bowls) and the empty space that forms its outside borders. If we think of the receipt as a planet and the blue marks as its continents, then most of its expanse, like our planet, is ocean.

To see the receipt in this way is to locate it in time. It is to see the receipt as the product of endless developments and innovations, small and large, stretching back over many centuries and reaching across many regions of the globe. As George Kubler has put it in *The Shape of Time*: “Everything made now is either a replica or a variant of something made a little time ago and so on back without break to the first morning of human time.”⁶ To see the receipt in this way is therefore to give it a past, but it is also to give it a future, a future that is necessarily uncertain and unknown, at best dimly and imperfectly glimpsed.

This receipt stands at a particularly interesting, and perhaps challenging, moment in time. [The paper on which it's printed has acquired a political and, indeed, even a moral resonance.] The seemingly endless availability of cheap paper, which took so many centuries to achieve, has permitted us to be cavalier about its use and mindless about its disposal. In recent decades, the association between the use of paper and the depletion of the planet's natural resources has come into focus, raising great concerns about sustainability and our collective long-term welfare. It has become increasingly difficult to see little pieces of paper like this one as disposable in the ways we once did.

It is worth noting that not all cultures have been quite so cavalier about their written records. In a book written in 1938, Chiang Yee

speaks movingly of the traditional Chinese attitude toward written forms (an attitude that surely cannot have survived the revolution):

Affection for the written word is instilled from childhood in the Chinese heart. We are taught never to tear up a sheet of writing, nor to misuse any paper with writing upon it, even if it is of no further practical use. In every district of a Chinese city, and even in the smallest village, there is a little pagoda built for the burning of waste paper bearing writing. [This we call *Hsi-Tzu-T'a* — Pagoda of Compassionating the Characters.] For we respect characters so highly that we cannot bear them to be trampled under foot or thrown away into some distasteful place. It is a common sight to see old men with baskets of plaited bamboo on their backs, gathering up this kind of waste paper from the streets and roads for burning in the *Hsi-Tzu-T'a*. You may be sure these old men do not act only on an impulse of tidiness! There may be people nowadays who think them foolish; but we cannot bring ourselves to abandon our deep-rooted traditional habits. Newspapers, books, every kind of printed matter are poured out on all sides and in increasing quantity, but still the old reverence for the written word prevails.⁷

(To this day, Jewish law dictates that all materials on which the Divine Name are written are to be handled respectfully, and they are to be buried when their useful lifetime is over.)

It is likely that future generations of receipts will have a very different look and feel. Digital receipts are already being created, part of a more general movement toward digital commerce. This very receipt may already carry the seeds of change within it: it may actually have a digital component to it, and if so it is something of a hybrid, a hermaphrodite. Although we can't tell just by looking at it, this receipt was probably produced using a digital cash register, a computer incorporating a printer and a cash drawer. If so, a digital record of my tuna-fish-chips-and-water transaction was being created as the sales clerk punched the cash register keys; and from this the paper version we see before us was printed. Viewed in this light, the receipt is an

evolutionary creature like the famed coelacanth, a fish with leglike fins marking the point at which sea creatures first began to venture onto land.

Still, we are missing a crucial perspective on the receipt — perhaps the most crucial. Although we have begun to locate it in the sweep of time, we have yet to see it in its own cultural time and place. We need to see it not so much in relation to events in the distant past or an unknown future, but in relation to its immediate surroundings. Within its local circumstances, what kind of thing is it? What work is it doing, and why is it doing it?

The first thing to notice is that the receipt is telling a story of sorts. It is admittedly a highly selective one, not likely to win any prizes for literature. Why would anyone bother to tell it? The answer is, of course, to be found in the way financial transactions are orchestrated in our culture. [The receipt is meant to function as “proof of purchase,” as evidence that an exchange of money for goods actually took place.] Coming into being at the very time and place the food was prepared and the goods were delivered, the receipt serves as witness to these facts. Its job is to tell its story in future situations, at other times and places — to play a role in other activities. It may be used, for example, to return or exchange the items purchased, when requesting reimbursement of the cost of the purchase (when submitting a travel expense report, say), or as a way of documenting expenses for tax purposes.

One could imagine a person performing such a service, someone who had witnessed the purchase and could testify to the facts when called upon to do so. Indeed, as M. T. Clanchy observes in his book *From Memory to Written Record*,⁸ in England up until the thirteenth century, people were required to witness and thereby validate financial and legal transactions. To transfer a piece of property (real estate) from one person to another, the donor would speak his intentions aloud in the presence of witnesses, at the same time handing over a symbolic object, say a knife or a small piece of earth, from the land being transferred. Should there be a dispute, the witnesses to the event

would be required to testify. By the end of the thirteenth century, however, a written document could serve as both the statement of intent and as witness to the facts of the matter.

Although we don't quite hear it this way, witnesses are people who have their wits about them. The root of the word *wit* is the Old English *witan*, meaning “to know,” as well as the Latin *videre* and the Greek *idein*, “to see.” The dictionary defines *wits* as “mental abilities, or powers of intelligent observation, keen perception.” Etymologically, then, a witness is someone who is not only present at some event, but who intelligently exercises his or her powers of observation.

What would it take, then, for a person to do the work this receipt is being asked to do? Such a person, first of all, would have to be present at the exchange of food for money. He or she would have to remember the transaction and be available to testify to it at some future time, possibly on multiple occasions. If I were ever audited, for example, and had claimed this meal as a business expense, I would bring this person along to vouch for my story. (The word *vouch* is from the Middle English *vouchen*, meaning to summon to court — in other words, to act as a witness and a guarantor.) But in testifying to the event, this person would need to express his testimony in terms that were useful to the proceedings. To say, “Well, I saw this guy come into the deli and leave about fifteen minutes later,” might be just right if the police were trying to determine my whereabouts, but it would be useless in establishing the specifics of the financial transaction that took place during that time. Finally, in addition to speaking truthfully and relevantly, the witness would have to appear credible; he would need to look and sound like someone who could be trusted, who could be counted on to speak truthfully and relevantly. The IRS auditor might not look favorably on someone who dressed and spoke as if he had spent the previous ten years on Skid Row.

But it would be hard to imagine building a global system of commercial exchange like the one we have now, with billions of transactions taking place each day, if human beings were required to stand

around in grocery stores, gas stations, and bookstores to witness the transactions taking place there, to remember them, and to testify to them at any time of day or night. Fortunately for global capitalism, we've figured out how to delegate this responsibility to small, marked pieces of paper (and now, increasingly, to invisible codes sent between computers). We've figured out how to get them to remember and report back what they've witnessed, to speak succinctly and accurately, and to do so in a credible manner.

But how is our little receipt able to accomplish this rather remarkable feat? The answer can't be found *in* the receipt itself — or in the receipt *alone*. To find it, you have to broaden your gaze and look at the way the receipt is situated, or embedded, in a huge web of human practices and knowledge distributed through space and time.

[Let's start by noticing that the receipt has a conventional form. The thin strip of paper, the column of numbers in blocky fixed-width characters, the logo at the top all serve to identify it *as* a cash register receipt. It wears its identity on its sleeve, for all to see. What's more, this conventional form carries a conventional content (the cost of items purchased, sales tax, totals, cash back, and so on). Nowhere on the receipt, however, does it actually state that this *is* a receipt, that this is a record of an exchange of goods for money, that "4.25" stands for the cost of an item and ".75" for another — nor does it explain any number of other facts that are immediately available to us. It doesn't have to. It can simply rely on the fact that we, literate members of the culture, have already acquired the skills needed to recognize receipts *as* receipts and to use them as such.]

Behind the scenes, however, a huge amount of invisible work (invisible from the perspective of this little receipt) is constantly being done to support the receipt in its apparently effortless work. There's the work of the cash register manufacturers, for example, continuing to produce machines that can record purchases and spew out receipts that obey the conventional formats. There's the work of the paper manufacturers producing paper rolls of the right consistency and price. There's the work of graphic artists and designers making the typefaces and the logos that appear on the receipts. There's the work

of shop employees training other shop employees to operate the cash registers, so they can push the right keys, change rolls of paper, and so on. All this and more is happening, just to make sure that receipts will be produced that conform to cultural expectations. And as for their ordinary, everyday use, that's where we customers come into the picture. For without our having learned to recognize and use receipts, thereby tacitly agreeing to uphold their conventions, the system couldn't possibly work.

Collectively, then, we conspire to help this receipt do its job. And when everything is working just right (which happens, amazingly, most of the time), a little piece of paper can emerge from a cash register in a deli, it can be torn off the roll and placed in a brown paper bag, and that piece of paper will count as a credible witness to the financial facts of a particular transaction.

But to say all this is almost to neglect the important work that the receipt itself is doing. Its job is to keep itself together, to maintain its form, content, identity, and stability. If it is to serve as proof of purchase, what was first witnessed in the deli must still be available days, weeks, months, and perhaps even years later, and in situations very unlike the one in which it first arose. A human witness would be asked to tell his story at a later time, and possibly to repeat it multiple times. [The receipt does this too, achieving repeatability through fixity. By holding its little blue marks fixed, it does its best to ensure that the story conveyed by these marks will be repeatedly available.]

Cheap ink, cheap paper, simple, unadorned numerals and letterforms — these qualities suggest something quite humble, insignificant, and generally unremarkable. And yet there is something remarkable about the receipt's ability to preserve or freeze some aspect of the world. The world, after all, is characterized by ever-ongoing change, motion, and transformation. Our bodies are changing all the time. Our thoughts are an endless parade of memories, dreams, and reflections. Our physical and social environment is constantly in motion as well, in ways both great and small. But over many millennia, in the midst of and in response to the reality of this

ongoing flux, human beings have figured out how to shape and freeze bits of the material world for a wide range of purposes. *Homo faber*, human being as maker, has learned how to make tools and artifacts of all kinds — hammers and knives and tables and bowls — that maintain their shape and function. [Writing is essentially the marrying of this ability to fix or preserve with the ability to symbolize or represent. It is the creation of stable artifacts and the affixing of meaningful marks to them.]

Flimsy and inconsequential though it may outwardly seem, the receipt is actually quite powerful. Gazing at a massive dam as it holds forth against the huge forces of a river, can we doubt that we are witnessing a marvelous feat of engineering, a triumph of human ingenuity over nature? Yet what this receipt does is no less remarkable and no less powerful, even if it is less immediately apparent, for it is holding forth against the ravages of time. One might even say *heroically holding forth*. Since ancient times, books have been considered vehicles of immortality because they were capable of preserving literary works — and thereby their authors' souls. The word *hero* is from the same Indo-European root, *ser-*, as the word *preserve*. A hero is someone who preserves and protects others. A document — be it a book or a cash register receipt — is something that preserves someone's thoughts or ideas, or some bit of information that would otherwise be carried away by the river of time. Although the content of this receipt is obviously less outwardly noble, less artistic, than a copy of one of Plato's dialogues or one of Shakespeare's plays, it partakes of the same basic technologies and practices of preservation that have allowed these works to live on through the ages.

It may seem strange to place small, trivial, invisible documents like this one alongside the great ones, and to speak of them in the same breath, but this is exactly what we must do if we are to see the entire class of documents, all of them, as a single species; and if we are to see their shared properties and their joint work in the world.

2

What Are Documents?

A FEW YEARS AGO, a short article titled "What's a Document?" appeared in *Wired* magazine. Written by David Weinberger, then a vice-president of the Open Text Corporation and now a business consultant, it begins with the provocative question, "Have you noticed that the word *document* doesn't mean much these days?" Here is the article in its entirety:

Have you noticed that the word *document* doesn't mean much these days? It covers everything from a text-only wordprocessing file to a spreadsheet to a Java-soaked interactive Web page.

It didn't used to be like this. A document was a piece of paper — such as a will or passport — with an official role in our legal system.

But when the makers of wordprocessors looked for something to call their special kind of files, they imported *document*. As multi-media entered what used to be text-only files, the word stretched to the point of meaninglessness. Just try to make sense of the file types Windows 95 puts into the Document menu entry.

The fact that we can't even say what a document is anymore indicates the profundity of the change we are undergoing in how we interact with information and, ultimately, our world.¹